



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/540,455

06/22/2005

Masaki Nobuhiro

511891-005

1423

27805

7590

08/15/2008

THOMPSON HINE L.L.P.
Intellectual Property Group
P.O. BOX 8801
DAYTON, OH 45401-8801

EXAMINER

RIFKIN, BEN M

ART UNIT

PAPER NUMBER

2129

MAIL DATE

DELIVERY MODE

08/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/540,455 | Applicant(s) NOBUHIRO ET AL. | |
| | Examiner Ben M. Rifkin | Art Unit 2129 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The instant application having Application No. 10540455 has a total of 3 claims pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US 5837143 A) in view of Fukui (US 7019227 B2) and Terada et al (US 6160324 A).

As per **claim 1**, Watanabe discloses, "A teaching pendant enabling device including first and second enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance with operated states of first and second deadman switches each **configured to assume (As opposed to actually assuming)** a first off-state when unoperated, an On-State when half operated, and a second off-state when completely

Art Unit: 2129

operated .. The teaching pendant enabling device comprising :(C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*). "Wherein, after an operating member of at least one of the first and second deadman switches has been turned into the second off-state, each of the first and second monitor circuits causes the respective one of the two switching means to keep the output line in an open state until both of the first and second deadman switches each made to assume the first off-state are detected"(C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released. It would be obvious, including the circuits described by the Fukui reference, to use these switches to detect the required state so that the system operates until either situation (pressing too hard, or releasing) comes up*). However, Watanabe fails to explicitly disclose, "Wherein the first and second deadman switches have six contacts respectively" and "Two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and first and second monitor circuits each configured to actuate a respective one of the two switching means in

accordance with results of detection of the operated states of the first and second deadman switches."

Fukui discloses, "Two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and first and second monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *This denotes various circuits associated with the teaching pendant. The two switching means are shown in figure 20, R1 and L1 respectively. The Monitoring circuit (that which monitors which is active, allowing things to pass through or not to pass through) is R3 and L3).*

Terada discloses, "Wherein the first and second deadman switches have six contacts respectively" (C3, particularly L23-43; EN: *this denotes a deadman switch being made up of a plurality of switches, which when combined with the clear disclosure of similar circuits disclosed by Fukui, would cover this invention).*

Watanabe, Fukui, and Terada analogous art because both involve deadman switches and robots.

At the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe with that of Fukui and Terada in order to have the circuit make up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

The motivation for having the circuit make up include an emergency halt set up for both releasing and pushing too hard on the pendant in order to "prevent[[ing]] an accident due to contact with the machine during work" (Fukui, C1, L15-20) by using circuits to prepare a deadman switch to protect the user.

The motivation for having numerous circuits would be because using the circuits allows the system to "allow the a robot to operate on the condition that all of the plurality of switches are in an on state" (Terada, C3, L23-43) which adds redundancy to the circuit and protects the user from harm.

Therefore at the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe, Fukui, and Terada in order to have the circuit make up required in order to have the circuit make up to have an emergency set up for both releasing and pushing

too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

As per **claim 2**, Watanabe discloses, "in accordance with any one of operated positions including a first opposition assumed in an unoperated, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition" (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*).

"Assume an off-state at the first and third positions and an on state at the second position" (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*).

Fukui discloses, "Wherein the first deadman switch (1a) has: first to ... normally close contacts (msw1a, msw21, msw3a, msw4a) each **configured to become open or closed (as opposed to actually opening or closing)** (Fig. 26 and associated paragraphs; *EN: this denotes a deadman switch. In this case, the contacts matching this portion are the Left-Hand Push-Button Switch, particularly L3 with subsets (L3-1 and L3-2)*). "First and second main contacts (sw1a, sw2a) each **configured to assume (as opposed to actually assuming)** ... (Fig. 26 and associated paragraphs; *EN:*

*In this case, the left-Hand Push-Button Switch with L1 and L2 respectively representing these circuits). "Wherein the second deadman switch (1b) has: Fifth to ... normally close contacts (msw1b, msw2b, msw3b, msw4b) each **configured to become open or closed (as opposed to actually opening or closing),...**" (Fig. 26 and associated paragraphs; EN: this denotes a deadman switch. In this case, the contacts matching this portion are the Right-Hand Push-Button Switch, particularly R3 with subsets (R3-1 and R3-2)). "Third and fourth main contacts (Sw1b, sw2b) each **configured to assume (as opposed to actually assuming),**" (Fig. 26 and associated paragraphs; EN: in this case, the Right-Hand Push-Button switch with R1 and R2 respectively representing these circuits). "Wherein the two switching means are first and second relays (R1 and R2), the first relay (R1) having first and second normally open contacts (R11, R12) and a ninth normally closed contact (R13); and the second relay (R2) having third and fourth normally open contacts (R21, R22) and a tenth normally closed contact (R23)" (Figure 20 and associated paragraphs; EN: in this circuit, which is closely related to the circuit disclosed in 26, it discloses circuits RL1-1 and RL1-2 which are both normally open as seen in the describing paragraphs as well as RL1-4 and RL2-4 which are normally closed contacts). "Wherein the first enabling signal circuit (c1)*

includes the first normally open contact (R11) connected in series with a parallel circuit parallel connecting the first and third main contacts (sw1a, sw1bb); and the second enabling signal circuit (c2) includes the third normally open contact (R21) connected in series with a parallel circuit parallel-connecting the second and fourth main contacts (Sw2a, sw2b)"

(See Fig. 20 and 26 and associated paragraphs; *EN: both disclose set ups linking the relays to the various parallel switches disclosed by this portion of the claim*). "Wherein the first monitor circuit (c3) connects the first relay (R1) in series with a parallel circuit parallel connecting a first series circuit (c31) in which the first, fifth, and tenth normally closed contacts (msw1a, msw1b, R23) are connected in series and a second series circuit (c32) in which the third and seventh normally closed contacts (Msw3a, msw3b) and the second normally open contact (r12) are connected in series;" (Fig. 11, 26, and 20 and associated paragraphs; *EN: Fig 11 discloses the Relay (RL) being in series with the discussed circuits which are similar to those disclosed in figures 20 and 26*).

Terada discloses, "and the second monitor circuit (C4) connects the second relay (R2) in series with a parallel circuit parallel connecting a third series circuit (C41) in which the second, sixth, and ninth normally closed contacts (msw2a, msw2b,

Art Unit: 2129

R13) are connected in series and a fourth series circuit (C42) in which the fourth and eighth normally closed contacts (msw4a, msw4B) and the fourth normally open contact R22) are connected in series" as well as "to eighth" and "to fourth" (of the normally closed contacts msw...) (C3, particularly L23-43; *EN: this denotes a deadman switch being made up of a plurality of switches, which when combined with the clear disclosure of similar circuits disclosed by Fukui, would cover this invention. These sections appear to be a duplication of the bottom portion of the circuit disclosed by Fukui in figures 11, 20, and 26).*

As per **claim 3**, Watanabe discloses, "A teaching pendant enabling device including plural enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance with operated states of first and second deadman switches each **configured to assume (as opposed to actually assuming)** a first off-state when unoperated, an On-State when half operated, and a second off-state when completely operated... comprising: (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released).* "Wherein, after an operating member of at least one of the deadman switches has been turned into the second off-state, each of the ... monitor

Art Unit: 2129

circuits causes the respective one of the two switching means to keep the output line in an open state until all of the deadman switches each made to assume the first off-state are detected "(C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released. It would be obvious, including the circuits described by the Fukui reference, to use these switches to detect the required state so that the system operates until either situation (pressing too hard, or releasing) comes up*). However, Watanabe fails to explicitly disclose, "Two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and first and second monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches" and "Three or more"

Fukui discloses, "... switching means configured to open/close an enabling signal output line of a respective one of the plural enabling signal circuits; and ... monitor circuits each configured to actuate a respective one of the three or more switching means in accordance with results of detection of the operated states of the plural deadman switches" (Fig.1-4, 8-29,

Art Unit: 2129

and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *This denotes various circuits associated with the teaching pendant. The two switching means are shown in figure 20, R1 and L1 respectively. The Monitoring circuit (that which monitors which is active, allowing things to pass through or not to pass through) is R3 and L3).*

Terada discloses, "Wherein the first and second deadman switches have six contacts respectively" as well as "three or more" (C3, particularly L23-43; EN: *this denotes a deadman switch being made up of a plurality of switches, which when combined with the clear disclosure of similar circuits disclosed by Fukui, would cover this invention).*

Further, even if Terada did not disclose this, it would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the number of switches since it has been held that mere duplication of the essential working parts of a device involve only routine skill in the art. *St. Regist Paper Co. v. Bemis Co.*, 193 USPQ 8. (EN: *The applicant cites having three or more circuits covering this aspect of the invention, and the prior art discloses having two as cited above in the rejection).*

Watanabe, Fukui, and Terada analogous art because both involve deadman switches and robots.

At the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe with that of Fukui and Terada in order to have the circuit make up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

The motivation for having the circuit make up include an emergency halt set up for both releasing and pushing too hard on the pendant in order to "prevent[[ing]] an accident due to contact with the machine during work" (Fukui, C1, L15-20) by using circuits to prepare a deadman switch to protect the user.

The motivation for having numerous circuits would be because using the circuits allows the system to "allow the a robot to operate on the condition that all of the plurality of switches are in an on state" (Terada, C3, L23-43) which adds redundancy to the circuit and protects the user from harm.

Therefore at the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe, Fukui, and Terada in order to have the circuit make up required in order to have the circuit make

up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben M. Rifkin whose telephone number is (571) 272-9768. The examiner can normally be reached on Monday through Friday 9:00 AM-6:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 12, 2008

Ben Rifkin
Examiner
Art Unit 2129

/Joseph P. Hirl/
Primary Examiner, Art Unit 2129